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School Choice and Earnings: A Case of Indonesia

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School Choice and Earnings: A Case of Indonesia

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Abstract

Public schools in Indonesia are widely perceived have better inputs and to be superior to private schools. Public schools also benefit advantages of high-scoring peer effect as entry to some junior secondary public schools in urban area is based on national score test in elementary school. In this paper, I attempt to confirm the perception of superiority of public school in Indonesia by comparing the yearly earnings of four types of schools group; Public, Private Secular, Private Islam, and Private Christian. I use a large-scale longitudinal observation of individual and household level on socioeconomic and health survey, Indonesia Family Life Survey (IFLS) 2000 to estimate the effectiveness junior secondary education in Indonesia. To correct for sample selection bias, I use the two-step method proposed by Bourguignon et al. As a result of insignificant all selectivity bias coefficients, I use the OLS estimation to calculate the earnings decompositions. The insignificant selection bias coefficients suggest that the OLS estimation is unbiased. I use the Blinder-Oaxaca decomposition with Reimers' decomposition technique to estimate earning differential between public and three types of private school graduates. The results of earnings decomposition from OLS estimation, suggest that earning of people who graduate from public school are 25 per cent and 35.2 per cent higher than their counterparts from private nonreligious and private Islam. On the other hand, student who schooled at private Christian school enjoys 0.28 per cents higher earnings that public.

JEL classification: J31
Keywords: Parent choice; Education; School effectiveness; Earnings; Indonesia

1. Introduction

The superiority of public school over private school in Indonesia is a contrary with the general perception that private school are better (Cox and Jimenez, 1991; Evans and Schwab, 1995;

Neal, 1997; Angrist et al., 2002; Newhouse and Beegle, 2006). These finding are supported by the evidence on schooling input and students-teacher ratio. According to Strauss et al. (2004) public schools in Indonesia enjoy higher quality inputs compare to private schools. Newhouse and Beegle (2006) add that Indonesian public school, particularly junior secondary schools generally provide more textbooks than in their private counterparts. The education level of teachers in public school is higher than private. Teacher of public school are less likely to have a second job. Other factor that may support the advantage of public school is its tuition fees averagely were higher than private (Newhouse and Beegle, 2006).

However, there are some indicators and evidences that support the common perception of private school superiority in Indonesia. James et al. (1996) that use final examination scores as an indicator of the effectiveness of school management find that elementary private school has lower cost per students. This finding concludes that elementary private school is more efficient to achieve academic performance. Bedi and Garg (2000) that compare the effectiveness of four type of junior school in Indonesia find that individual who studied at non religious private school earns 75 per cents higher than their publicly counterpart.

In developing countries the evidences are also ambiguous. McEwan (2001) compares academic achievement of eighth level students in six types of schools: public DAEM[1], public corporation, Catholic voucher, Protestant voucher, non-religious voucher, and private non-voucher schools. McEwan (2001) finds that average student achieve highest in private non-voucher schools compare to the public DAEM. On the other hand, non-religious voucher private schools are less effective than public DAEM schools and as effective as corporation schools. Cox and Jimenez (1991) and Jimenez et al. (1991) find that there are significant advantages in private school achievement. Those studies compare the standardized cognitive achievement score in Colombia, the Dominican Republic, the Philippines, Tanzania and Thailand to examine the school type effectiveness. Asadullaha et al. (2007) using a rich data set from rural Bangladesh find that graduates of primary private madrasa Islamic school significantly under-perform com-

[1]DAEM or Departmento de Administracion de la Educacion Municipalis; part of municipal bureaucracy.

pared to public schools. On the other hand, Lassibille (2001) Using longitudinal data from a 1994 survey of students in Ghana find that two type private schools, Christian and Wazazi, are less efficient than two types of public schools, Government and Community. They also find that a student with a given characteristics and family background has better cognitive achievement in either type of public school than in either type of private school.

Most papers that study about school choice and school effectiveness in the education field focus to the relationship between school resources and test scores or cognitive achievement. Instead of using standardized test, many economists give more focus on earnings as an indicator of school performance. The opponents of standardized testing argue that the tests are arbitrarily scaled, does not has lasting effect on student's knowledge and does not measure the skills that have economic value. On the other hand, many economists believe that earnings reflect the market value of skills and knowledge that obtained in school (Card and Krueger, 1994).

In this paper, I investigate the effectiveness of public and private schools in Indonesia. I follow previous papers (Betts, 1995; Bedi and Garg, 2000; Strayer, 2002; Dustmann, 2004) to use earnings as the indicator for school effectiveness. This is not the first paper to examine the school effectiveness in Indonesia (James et al., 1996; Bedi and Garg, 2000; Newhouse and Beegle, 2006). However, this paper has different in some features compare to those papers. Newhouse and Beegle (2006) and also James et al. (1996) use student's achievement in school to measure the school effectiveness. Despite this paper has similarity with Bedi and Garg (2000) that use earnings as an indicator of school performance, however, I do not include some control variables to the model: such as proxy for quality of school condition; dummy variable for scholarship. The proxy for school condition[2] and dummy variable for scholarships[3] are not appeared in IFLS3.

[2]The proxy is constructed from question no. DL23 in Book III-4 IFLS1: "What is the major flooring type in the classroom (now/last school year) ?". Actually, the question no. DL23 is ambiguous since it not specific to particular level of school.

[3]Similar to school condition, the question about scholarships or question no. DL18 in Book III-4 IFLS1:" In attending school (currently/your last school year) do/did you receive full or partial scholarship? A scholarship includes a grant from the government or other organization or tuition deduction from the school." does not ask for specific level of school

This paper proceeds in the following direction. In the next section, I present some Information on Indonesia's formal school system. The third section sets about model of school choice determinants, selectivity bias, and earnings decomposition. The fourth section presents about sample data that taken from Indonesia Family Life Survey. In the final section, I present the result and interpret several empirical analyses, while the final section summarizes and concludes.

2. The Formal School in Indonesia

Based on the National Education System Law No. 20/2003, the formal school system in Indonesia consist of five level of formal education system[4]. The formal school system begins with two years of kindergarten and follow by the three basic education. The first three basic level are primary, junior or lower secondary and senior or upper secondary education. Primary education consists of 6 year levels and students start at age 7. Junior secondary consists of three years education and start at age between 13 and 15. In the beginning of 1990s, instead of continue to general school, students who have finished primary school could continue to three years vocational or pre-professional junior and secondary schools. Senior or upper secondary education as well as junior secondary has three years level whereas the age cohort in this level is between 16 and 19 years. At the end of the primary, junior and secondary school, students have to take the national examination test or called the EBTANAS. Every public school and some of the elite private schools set some minimum level as the entry requirement.

The highest level is tertiary or higher education that consist of diploma course or an undergraduate degree. These degree are provided by among varieties form of educational institutions: academies, polytechnics and universities. Tertiary level could take between 1 to 4 or 5 years. Afterward, people can continue their education to S2 program or master degree and S3 program or doctoral degree. Both degrees consist of academic and professional path and take up to 5 years.

[4]Before 2003, the formal school system consists of four level of education as it had same path as the newest system excluding the kindergarten level

Based on sources of funding, these schools are distinguished as public and private schools. According to Oey-Gardiner (1997), many private schools even funded by the government in many financial form as they have to follow the set government's rules, regulations, and standards. Most public schools are secular schools whereas many of private schools are religious Islam or Christians schools. In primary education most of the school is public school. On the other hand, starting from junior secondary, the higher the level education is the bigger role of private sectors in providing education.

It is acknowledged that private schools provide the places for students who cannot fulfill the public school entry test requirements and cannot afford the public school tuition fees. Excluding a few very good private schools, the qualities of most private schools are poor. According to World Bank (1998) the private schools are more cost efficient managed, however, also has lower-quality input. The education of average private school teacher and principle are lower and availability of textbooks in private school is lower than in public schools.

The formal school system above is managed by The Ministry of Education and Culture or MOEC (Now, the Ministry of National Education or MONE). On the other hand, there is religious school system, mostly Islamic that managed by The Ministry of Religious Affairs or MORA. Around 40 per cent of its curriculum contain to religious teaching whereas the other 60 percent of the curriculum follow the secular formal school that setup by the MOEC. According to Parker (2008), quality of private Islamic school in Indonesia is regarded as a second class school. Even the poor condition in Islamic school is also admitted by the Indonesian government (Parker, 2008). Frequently, many student end up to choose the Islamic private school as they fail to pass standard minimum that require by the better-quality, public schools.

Only five years after the independence, the Indonesian Government has an ambition to provide 6 years of universal primary education. This commitment is supported by the basic education law that passed in 1950. However, the significant increase of the enrollment rate is not started until 1970s. The expansion of primary school is a result of a massive project to build schools across the country through Presidential Instruction (INPRES) that funded by the

oil boom revenues in 1973. As it is showed on the table 1, the gross enrollments of primary education rose from 80 in 1970 to 107.0 percent in 1995 and achieve 107.1 in 2005. The gross enrollment rate in junior secondary education significantly increased from 16 percent in 1970 to 65.7 in 1995 and rise to 81.7 percent in 2005.

Table 1: GROSS ENROLLMENT RATES INDONESIAN BASIC EDUCATION, 1995-2005*

Level	**1970**	**1980**	**1995**	**1998**	**2000**	**2002**	**2004**	**2005**
Primary	80.0	107.0	107.0	109.3	110.1	106.1	107.0	107.1
Junior Secondary	16.0	29.0	65.7	70.3	76.0	79.5	82.2	81.7
Higher Senior Secondary	16.0	NA	42.4	46.4	51.5	50.4	54.4	52.9

* Source: World Bank (2007).

The Government extends the commitment to basic schooling from 6 to 9 years in 1989. With the ambition to achieve 9 years of the universal schooling by 2010 the Government eliminates the junior secondary fees in 1994 (Behrman et al., 2002). However, the secondary enrollment rates stay low. For instance, the net enrollment of junior secondary school in 1995 in rural area is only two thirds the levels of that in urban area. The other evidence from 1999 data shows that the enrollment rates of the lowest expenditure group is 43 per cent compared to 77 per cent of the highest income group (Triaswati, 2000). Behrman et al. (2002) argue that the government strategy to focus on universal primary education is a reason of low support for poor people who mostly live in rural area to access the secondary education.

According to ADB (1998), the Indonesian Government only spend about 66 per cent of total education spending as the rest is financed by families and additional nongovernment sources. Most of the school, public or private, charges entrance fees, monthly levies, and sometimes charge special funds for specific purposes. These family contributions contribute significantly to finance non salary expenditures. Since the school fees were abolished in 1994, the family donation and parent-teacher associations (PTAs) have an important role in funding the public junior secondary school. *Badan Pembantu Penyelenggaraan Pendidikan* or BP3 is a form of

PTA that consist of parents, school principal, teachers and other members from the community. The major role of BP3 in public school is to raise funds from parents' donations, whereas, in private schools, BP3 has bigger roles in school management; such as tuition fees setting and, hiring-firing principal and teachers.

3. Model

3.1 Earnings Determination and The Determinants of School Choice

Parents of students face number of educational choice. In my model, parents whose their children have finished primary education have to choose a junior secondary education. I assumed that parents have already decided for send their children to junior secondary school. Parents have to choose four available type of secondary school; public, private Islam, private secular, and private Catholic, Protestant and others. The decision of parent regarding their children education could play an important role in labor market earnings.

A parent of individual i, that having graduated from primary school, has to choose the type of junior secondary education. The earnings associated with an alternative, along with the individual's preferences and financial constraints, will determine the value of the alternative to i. For each alternative, the potential earnings process is

$$\boldsymbol{Y_{ij} = y_j(X_i, e_i) \quad j = 1, ..., J,} \tag{1}$$

where X_i is observable individual or family characteristics whereas e_i is unobservable characteristics. j is the junior secondary school types. Equation (1) determine that the earnings paid in the labor market depends on which choice a parent makes. The discounted present value (indirect utility) of a particular alternative is

$$\boldsymbol{V_{ij} = v_j(Z_i, y_j, C_j, u_i) \quad j = 1, ..., J,} \tag{2}$$

where equation (2) is the present value of the earnings stream that determined by taste and financial constraints Z_i, direct and indirect cost to entry school type j and unobserved personal attributes u_i. Individual chooses one of school types j to maximize their utility as in equation (3)

$$\boldsymbol{V_{ij} = max(V_{i1}, ..., V_{ij})} \tag{3}$$

With an additional assumption that

$$\boldsymbol{(e, u) \sim g(e, u)} \tag{4}$$

To determined the decision of the individual, the earnings future stream is parametrized into a geometric growth process. The expected earnings of individual i that choose the alternative j is

$$\begin{aligned} \boldsymbol{Y_{ij} = 0, \quad 0 < t \leq \infty} \\ \boldsymbol{Y_{ij} = \hat{y}_{ij} e^{g_j (t - s_j)}, \quad s_j \leq t < \infty} \end{aligned} \tag{5}$$

where Y_{ij} are the yearly earnings of individual i at time t if alternative school type j is chosen. $\hat{y}_{ij}$ is initial level of earnings whereas g is a growth rate. s_j is the time when individual i entry the labor market and $t - s_j$ is the labor market experience.

Follow the model by Bedi and Garg (2000), besides direct cost, for instance transportation cost, students also face costs of entry. Some public school and also some elite private schools require a minimum test score on national primary education final examination (EBTANAS). This minimum score could be considered as a type of non price entry selection. Other type of non price criterion is religion.

Based on these criterions, the equation of cost is

$$\boldsymbol{C_{ij} = c_j(O_i, \tau_i),} \tag{6}$$

Where O_i are observable variables that contain ability, family background and regional variables whereas τ_i is an unobserved variable. The combination of equation (5) and (6) generate a net present values. It is assumed that in an infinite horizon, a constant rate of discount for individual i is r_i where $r_i > g_{ij}$, in order for this present value to be finite. Following Willis and Rosen and Strayer (2002), the net present value of earnings is

$$\begin{aligned} \boldsymbol{NPV_{ij}} &= \boldsymbol{e^{-\gamma_j C_j} \int_{s_t}^{\infty} Y_{ij}(t) e^{(-r_i t)} dt} \\ \boldsymbol{NPV_{ij}} &= \boldsymbol{e^{-\gamma_j C_j} \int_{s_t}^{\infty} Y_{ij} e^{g_j (t - s_t)} e^{(-r_i t)} dt} \\ \boldsymbol{NPV_{ij}} &= \boldsymbol{\frac{\bar{Y}_{ij}}{r_i - g_{ij}} e^{-r_i s_t - \gamma_j C_j}} \end{aligned} \tag{7}$$

In equation (7) two factors reduce the infinite earnings stream $(\bar{Y}_{ij}/[r_i - g_{ij}])$. The first is the wage cost and second, direct and indirect cost of choosing school type j.

The logarithm of NPV_{ij} is

$$\boldsymbol{NPV^* = NPV_{ij} = ln\bar{Y}_{ij} - ln(r_i - g_{ij}) - r_i s_j - \gamma_j C_j} \tag{8}$$

And a Taylor series approximation to the nonlinear term, $ln(r_i - g_{ij})$ produce linear reduced form of net present value, NPV^*

$$\boldsymbol{NPV^* = \omega_{0j} + \omega_{1j} ln\bar{Y}_{ij} + \omega_{2j} r_i - \gamma_j C_j,} \tag{9}$$

The earnings of individual i at time $t^* = (t - s_j)$, in terms of $\bar{Y}_{ij}$ and g_{ij}, is

$$\boldsymbol{lnY_{ij}(t^*) = ln\bar{Y}_{ij} + g_{ij} t^*} \tag{10}$$

where the rate of wage growth, g_{ij}, is a parameter that varies across school type alternatives. The initial earnings, $ln\bar{Y}_{ij}$, depends on individual characteristics and family background, X_i. Where the equation of inital earnings is

$$ln\bar{Y}_{ij} = \alpha_{0j} + \alpha_{1j}X_i + \varepsilon_{ij} \tag{11}$$

Hence, the earnings process is

$$lnY_{ij}(t^*) = \alpha_{0j} + \alpha_{1j}X_i + \varepsilon_{ij} \tag{12}$$

where X_{ij} is observable variables. α_{1j} is a coefficient vector whereas ε_{ij} is error term.

As Bedi and Garg do the school type choice rule could be expressed as

$$T_j = j \quad if \quad lnY_{ij} > max(lnY_{ij})_{ik}, \quad j = 1...J, \quad k \neq j \tag{13}$$

where T_j is school indicator. The parameters in equation (12) and parameters in equation (13) may be yield by estimating a multinomial discrete choice model. The combination of equatin (12) and (13) defines a polychotomous logit model where

$$P_{ij} = Pr(T_j = j) = \frac{\alpha_{1j}X_{ij}}{\sum_{k=1}^{j} e^(\alpha_{1j}X_i)} \tag{14}$$

The equation (14) is a reduced form relationship where reduced school type selection is an outcome of parental choice as well as the non-price selection criterion that use by schools.

3.2 Earnings and Selectivity Bias

This research on school choice focused on a standard wage equation of the form

$$lnY_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + \varepsilon_{ij} \tag{15}$$

where lnY_{ij} is the natural logarithm of yearly earnings to an individual who studied at junior secondary school type j. X_{ij} are observed variables which include individual characteristics, ability, family backgrounds, and regional dummies. β_{1j} are coefficients vector of observable

variables and ε_{ij} is error term as it is assumed to be a normally distributed with mean zero and positive variance.

Similar to Wilis and Rosen (1979) the selection bias problem is consider caused by the choice school type. The expected value of log earnings in equation (15) illustrates the problem. The expected log earnings conditional on school choice is

$$\boldsymbol{E(lnY_{ij} \mid T = j) = \beta_{1j} X_{ij} + E(\varepsilon_{ij} \mid T = j)} \tag{16}$$

The selection bias may be appeared in equation above if $E(\varepsilon_{ij} \mid T = j) \neq 0$ therefore OLS estimation on equation 15 are inconsistent. Using a two-step procedure that shown by Lee(1983), the consistent earnings equation could be produced and selection bias can be controlled. The first step is estimate the equation (14) by the multinomial logit to determined school choice. The multinomial logit yield a selectivity correction term as in the second step this term are included to obtain consistent estimates. After the selectivity is included, the earnings equation becomes

$$\boldsymbol{lnY_{ij} = \beta_{0j} + \beta_{1j} X_{ij} + \rho_j \lambda_{ij} + \eta_{ij}} \tag{17}$$

where λ_{ij} is the selection correction term as it measures the effect of the non-random sorting of individuals, while the sign indicates the nature of the selection. The positive sign in the selection term coefficient indicates that unobserved variables that influence school choice are positively correlated with unobserved variables that determine earnings.

3.3 Decomposition of Earnings Differential

I use the Blinder-Oaxaca earning decomposition to estimate the difference in earnings between public and private school graduates. The Blinder-Oaxaca decomposition originally is used to check for differences in characteristics between men and women as in Oaxaca (1973). However, some studies about earnings gap and education also use the decomposition method (for

instance see Bedi and Garg, 2000; Le and Miller, 2003)

Using Blinder-Oaxaca method the difference in average log earnings offers is

$$\overline{\ln \boldsymbol{Y_j}} - \overline{\ln \boldsymbol{Y_k}} = (\overline{\boldsymbol{X_j}} - \overline{\boldsymbol{X_k}})[\boldsymbol{D}\hat{\boldsymbol{\beta}}_{\boldsymbol{j}} + (\boldsymbol{I} - \boldsymbol{D})\hat{\boldsymbol{\beta}}_{\boldsymbol{k}}] + [\overline{\boldsymbol{X_j}}(\boldsymbol{I} - \boldsymbol{D}) + \overline{\boldsymbol{X_k}}\boldsymbol{D}](\hat{\boldsymbol{\beta}}_{\boldsymbol{j}} - \hat{\boldsymbol{\beta}}_{\boldsymbol{k}}) \tag{18}$$

where $\overline{\ln Y_j}$ and $\overline{\ln Y_k}$ are the means of the log earnings of school type j (public) and school type k (privates). $\overline{X_j}$ and $\overline{X_k}$ are vector of independent variables for public and privates graduates whereas β_j and β_j are the estimated coefficients. I is the identity matrix and D is a diagonal matrix of weights.

The choice of D as the measures of weight will measures the discriminantion impact. Some studies view that $D = I$ where they assumed assumption assumed that discrimination penalizes the minority by preventing them from earning according to the majority group's wage-offer function. On the other hand, some other studies assumed that $D = 0$, where they argue that discrimination gives the preferred group an undeserved advantage, that they are paid more than they would get in a non-discriminatory world (Reimers, 1983).

In this paper, I use decomposition proposed by (Reimers, 1983). Reimers assumed that the no-discrimination earnings function lies somewhere between a dicrminatory and a non-discriminatory world. Therefore Reimers proposed $D = (0.5)I$ for decompositions of the earnings differentials.

Using the Reimers' decomposition, the observed earnings differential now become

$$\overline{\ln \boldsymbol{Y_j}} - \overline{\ln \boldsymbol{Y_k}} = (\overline{\boldsymbol{X_j}} - \overline{\boldsymbol{X_k}})[\boldsymbol{0.5}(\hat{\boldsymbol{\beta}}_{\boldsymbol{j}} + \hat{\boldsymbol{\beta}}_{\boldsymbol{k}})] + (\hat{\boldsymbol{\beta}}_{\boldsymbol{j}} - \hat{\boldsymbol{\beta}}_{\boldsymbol{k}})[\boldsymbol{0.5}(\overline{\boldsymbol{X_j}} + \overline{\boldsymbol{X_k}})] \tag{19}$$

Furthermore, if the selection bias appears in the model then the log earnings decomposition become

$$\begin{aligned}\overline{\ln \boldsymbol{Y_j}} - \overline{\ln \boldsymbol{Y_k}} =& (\overline{\boldsymbol{X_j}} - \overline{\boldsymbol{X_k}})[\boldsymbol{0.5}(\hat{\boldsymbol{\beta}}_{\boldsymbol{j}} + \hat{\boldsymbol{\beta}}_{\boldsymbol{k}})] + (\hat{\boldsymbol{\beta}}_{\boldsymbol{j}} - \hat{\boldsymbol{\beta}}_{\boldsymbol{k}})[\boldsymbol{0.5}(\overline{\boldsymbol{X_j}} + \overline{\boldsymbol{X_k}})] \\ &+ \hat{\boldsymbol{c}}_{\boldsymbol{j}}\overline{\boldsymbol{\lambda_j}} - \hat{\boldsymbol{c}}_{\boldsymbol{k}}\overline{\boldsymbol{\lambda_k}}\end{aligned} \tag{20}$$

where λ_j and λ_k are the correction terms and $\hat{c}_j$ and $\hat{c}_k$ are the estimated coefficients on the correction term variables.

Some prominent discrimination literature (for instance see Jann, 2008) create an alternative decomposition result that shows some nondiscriminatory coefficients vectors that has contribution to determine the earnings differences. From the equation (19) Jann (2008) shows that the two fold decomposition is

$$\overline{\ln Y_j} - \overline{\ln Y_k} = \underbrace{(\overline{X_j} - \overline{X_k})\beta^*}_{Q} + \underbrace{\overline{X_j}(\beta_j - \beta^*) + \overline{X_k}(\beta^* - \beta_k)}_{U} \tag{21}$$

where Q is the part of differential of the outcome that is *explained* by group differences in the predictors and U is the *unexplained* outcome differential. U also attributed to discrimination as well as captures all potential effects of differences in unobserved variables. As correspondence to Reimers method where the average coefficients over both groups, hence the estimation for the nondiscriminatory parameter vector is

$$\hat{\beta}^* = 0.5\hat{\beta}_j + 0.5\hat{\beta}_k \tag{22}$$

4. Data

I use Indonesia Family Life Survey (IFLS) 3 year of 2000 to estimate the school choice model and earnings decomposition of private and public schools graduates in Indonesia. The IFLS is a large-scale longitudinal observation of individual and household level on socioeconomic and health survey. The IFLS sampling scheme was formed on provinces, then randomly selected the samples within provinces. Due to the cost-effectiveness reason the survey had taken only 13 out of 26 provinces on the Island of Java, Sumatra, Bali, West Nusa Tenggara, Kalimantan, and Sulawesi. They were selected as it approximately represents the 83 percents of Indonesian population. RAND, as the major producer of IFLS has been conducting the forth wave of IFLS, so called IFLS4. According to RAND website, the public use files and documentation

of IFLS4 should be ready by early spring 2009. However, I only use the IFLS3 as I assume that the paper was conducted when the IFLS4 has not been publicly released. I also aware that in IFLS2 (1997) the employment data [5] have not been publicly published until now.

Table 2: DEFINITIONS OF VARIABLES IN SCHOOL-CHOICE AND EARNINGS EQUATIONS

Variable	**Description**
LOGEY	Earnings total in a year of 2000
AGE	Age in year of 2000
JUNIOR	Jr. sec. is the highest level education? yes=1, no=0
SENIOR	Senior sec. is the highest level education? yes=1, no=0
HE	Higher education is the highest level education? yes=1, no=0
MALE	male=1, female=0
ISLAM	Religion Islam? yes=1, no=0
NON	Religion Non Islam? yes=1, no=0
PRIFAIL	Failed in primary school? yes=1, no=0
VILLAGE	Live in village at 12 years olds? yes=1, no=0
TOWN	Live in small town at 12 years olds? yes=1, no=0
CITY	Live in big city at 12 years olds? yes=1, no=0
LANGINDO	Do you speak Bahasa Indoensia in daily life? yes=1, no=0
FATHPRIB	Highest level education of father is primary education? yes=1, no=0
FATHJH	Highest level education of father is Jr. sec.? yes=1, no=0
FATHSHHE	Highest level education of father is senior sec. or higher education? yes=1, no=0
MOTHPRIB	Highest level education of mother is primary education? yes=1, no=0
MOTHJH	Highest level education of mother is Jr. sec.? yes=1, no=0
MOTHSHHE	Highest level education of mother is senior sec. or higher education? yes=1, no=0
NSUMARES	Reside in North Sumatra? yes=0, no=1
WSUMARES	Reside in West Sumatra? yes=0, no=1
SSUMARES	Reside in South Sumatra? yes=0, no=1
LAMPUNGRES	Reside in Lampung? yes=0, no=1
JAKARTARES	Reside in DKI Jakarta? yes=0, no=1
WJAVARES	Reside in West Java? yes=0, no=1
CJAVARES	Reside in Central Java? yes=0, no=1
JOGJARES	Reside in Jogjakarta? yes=0, no=1
EJAVARES	Reside in East Java? yes=0, no=1

Continued on Next Page...

[5] The employment data is located in b3atk1-4 files.

Table 2 – Continued

Variable	Description
BALIRES	Reside in Bali? yes=0, no=1
NTBRES	Reside in NTB? yes=0, no=1
KALSELRES	Reside in South Kalimantan? yes=0, no=1
SULSELRES	Reside in South Sulawesi? yes=0, no=1
NSUMAED	Jr. sec. school located in North Sumatra? yes=0, no=1
WSUMAED	Jr. sec. school located in West Sumatra? yes=0, no=1
SSUMAED	Jr. sec. school located in South Sumatra? yes=0, no=1
LAMPUNGED	Jr. sec. school located in Lampung? yes=0, no=1
JAKARTAED	Jr. sec. school located in DKI Jakarta? yes=0, no=1
WJAVAED	Jr. sec. school located in West Java? yes=0, no=1
CJAVAED	Jr. sec. school located in Central Java? yes=0, no=1
JOGJAED	Jr. sec. school located in Jogjakarta? yes=0, no=1
EJAVAED	Jr. sec. school located in East Java? yes=0, no=1
BALIED	Jr. sec. school located in Bali? yes=0, no=1
NTBED	Jr. sec. school located in NTB? yes=0, no=1
KALSELED	Jr. sec. school located in South Kalimantan? yes=0, no=1
SULSELED	Jr. sec. school located in South Sulawesi? yes=0, no=1
OTHERED	Jr. sec. school located in Other Province? yes=0, no=1

The initial data set consist of data of respondents who have earnings and are no longer students. The other restrictions are included excluding of respondents whose education less than 7 years. Unlike Bedi and Garg (2000), I include the respondents whose education more than 12 years. The sample data consists of 13,575 respondents who have earnings data. Missing and miscoded data and also sample restrictions reduce the data set by 12,045 (almost 89 percent) to 1530 observations. Most of the observations, 5,098, are dropped as they had not proceeded beyond primary school, while 2,861 observations drop since they do not provide education information. Moreover, I drop 3,468 respondents due to missing information on parents' education. The other 892 and 793 respondents also dropped as they do not provide age information and resident information. Some of the observations also are dropped due to missing information on location of junior secondary education (793 observations), information on religion (3 observations), information whether failed a grade at primary education (13),

missing information on failed in primary school (1), missing information on the school type (7).

Table 3: SUMMARY STATISTICS (N=1530)

Variable	Mean	Standard Deviation
LOGEY	15.368	1.195
EARNINGSY	10,227,778.258	54,165,449.026
AGE	33.865	7.855
JUNIOR	0.352	0.478
SENIOR	0.424	0.494
HE	0.224	0.417
MALE	0.651	0.477
ISLAM	0.818	0.386
NON	0.182	0.386
PRIFAIL	0.211	0.408
VILLAGE	0.559	0.497
TOWN	0.267	0.443
CITY	0.173	0.379
LANGINDO	0.372	0.483
FATHPRIB	0.727	0.446
FATHJH	0.135	0.341
FATHSHHE	0.131	0.337
MOTHPRIB	0.850	0.358
MOTHJH	0.088	0.284
MOTHSHHE	0.057	0.232
PUBLICJH	0.639	0.480
PRIVATENRJH	0.182	0.386
PRIVATEISJH	0.112	0.315
PRIVATECPOJH	0.067	0.251
URBAN	0.677	0.468
NSUMARES	0.090	0.286
WSUMARES	0.057	0.232
SSUMARES	0.044	0.205
LAMPUNGRES	0.029	0.167
JAKARTARES	0.127	0.333
WJAVARES	0.134	0.341
CJAVARES	0.107	0.309
JOGJARES	0.073	0.261
EJAVARES	0.125	0.331
BALIRES	0.064	0.245
NTBRES	0.056	0.229
KALSELRES	0.045	0.208

Continued on Next Page...

Table 3 – Continued

Variable	Mean	Std. Dev.
SULSELRES	0.050	0.219
NSUMAED	0.098	0.297
WSUMAED	0.063	0.243
SSUMAED	0.043	0.203
LAMPUNGED	0.022	0.147
JAKARTAED	0.065	0.246
WJAVAED	0.122	0.327
CJAVAED	0.152	0.359
JOGJAED	0.068	0.252
EJAVAED	0.142	0.349
BALIED	0.063	0.243
NTBED	0.048	0.215
KALSELED	0.029	0.169
SULSELED	0.048	0.213
OTHERED	0.038	0.191
N	1530	

I present the means and standard deviation of the variables in table 2 and 3. A description of the variables that used in the estimation can be found in table 1. I follow Bedi and Garg (2000) to split all sample to 4 type of group; Public, Private Non Religious (secular), private Islam, and Private Catholic and Protestant (Christian). There are about 64 percent of the respondents who study in public school. Public school actually consists of public non religious and public Islam. I combine the two groups since the number of sample who attends public religious is very small. On the other hand, the proportion of private secular is 18 percent while the sample of private Islam ad private Christian are 11 percent and 7 percent. The average yearly earnings of all sample is Rupiah 10, 2227, 778.258 (or about AUD 12,000) . Whereas the average age of respondents is 33.865 years, 65 percent is male and 81.8 percent is Moslem. From table 3 that present the descriptive statistics of variables by type of school, the private Catholics and Protestant (Christian) are more likely to continue to higher education or 27.2 percent. This data is corresponding to its low probability to discontinue to a higher level of education.

Probability of public school students to attend higher education is lower than private Christian. However, the probability is higher than private secular and private Islam. Moreover, public students have the highest probability to attend senior secondary education as the proportion is 43.5 percent. Private Islam school students have a lowest probability to continue to senior secondary and higher education as 49.1 percent of them are discontinue after they get junior secondary education.

Table 4: SUMMARY STATISTICS BY TYPE OF SCHOOL

Variables	**Public**		**Private NR**		**Private Islam**		**Private Christian**	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
LOGEY	15.451	1.182	15.201	1.213	15.098	1.191	15.479	1.185
AGE	33.951	7.794	32.924	7.953	33.573	7.841	36.078	7.827
JUNIOR	0.316	0.465	0.406	0.492	0.491	0.501	0.311	0.465
SENIOR	0.435	0.496	0.432	0.496	0.357	0.48	0.417	0.496
HE	0.249	0.433	0.162	0.369	0.152	0.36	0.272	0.447
MALE	0.667	0.472	0.626	0.485	0.637	0.482	0.592	0.494
ISLAM	0.843	0.364	0.77	0.422	0.988	0.108	0.437	0.498
NON	0.157	0.364	0.23	0.422	0.012	0.108	0.563	0.498
PRIFAIL	0.209	0.407	0.23	0.422	0.211	0.409	0.184	0.39
VILLAGE	0.550	0.498	0.55	0.498	0.696	0.461	0.447	0.5
TOWN	0.288	0.453	0.223	0.417	0.175	0.381	0.34	0.476
CITY	0.162	0.368	0.227	0.419	0.129	0.336	0.214	0.412
LANGINDO	0.379	0.485	0.371	0.484	0.304	0.461	0.417	0.496
FATHPRIB	0.709	0.455	0.759	0.428	0.801	0.4	0.689	0.465
FATHJH	0.135	0.342	0.144	0.352	0.105	0.308	0.155	0.364
FATHSHHE	0.146	0.354	0.097	0.297	0.082	0.275	0.155	0.364
MOTHPRIB	0.839	0.367	0.881	0.324	0.877	0.329	0.816	0.39
MOTHJH	0.097	0.296	0.061	0.24	0.064	0.246	0.117	0.322
MOTHSHHE	0.056	0.230	0.054	0.226	0.058	0.235	0.068	0.253
URBAN	0.677	0.468	0.716	0.452	0.544	0.5	0.796	0.405
N	978		278		171		103	

Parental education is highest for those who study in public and private Christian schools. The most groups who live in city area when they attend junior secondary school are private secular and private Christian, whereas private Islam group is the most group who live in the village area. This data is similar with the proportion of respondents who live in urban-rural area after they do not study anymore and have income. Most groups who live in the urban area

are private secular and private Christian.

The respondents of private Islam group are 98.8 percent Moslem. On the other hand there are 43.7 percent respondents who study in private Christian school. This data could imply that there is a small religion barrier to attend private Christian school. However, the high proportion of Moslem students in public and private Islam school does not justify the strong religion barrier to entry those schools. The quality or the parent expectation could be the important factor on school choice decision to public or private religious schools.

5. Empirical Result

5.1 School Choice Model Estimation

Before I estimate the earnings differential between public and three types of private school groups, I estimate polychotomous school choice model that given by equation (14). Following some previous studies about earnings decomposition and school choice (Bedi and Garg, 2000; Le and Miller 2003; Newhouse and Beegle, 2005), I use a multinomial logit to estimate the polychotomous school choice model, instead of OLS, to predict multiple school choice. I choose this method since school sorting in Indonesia may not be exogenous as the junior secondary school sorting could be as a result of parental choice and selection criteria that in some case may implement by the school. Moreover, multinomial logit estimation could overcome the possibility selectivity bias problem as the student who has higher ability may be more likely to enter public secondary schools. Following Bedi and Garg (2000), I assume that in making decision, parents evaluate the benefits of attending each particular school and they faced four available school types, public (secular and religious), private non-religious (secular), private Islam and private Catholic, Protestant, and other schools. The school sorting that based on selection criteria most likely true for public secondary school as they require a certain level of final test score or NEM (Nilai Ebtanas Murni).

Estimates of the multinomial logit of school choice model are presented in Table 4. The

reference category is public school *(PUBLIC)* whose repressor coefficients are set to zero. Thus there are three sets of parameters: *PRIVATE NR* (Private Secular), *PRIVATE ISLAM* (Private Islam), and *PRIVATE CHRISTIAN* (Private Catholic and Protestant).

Table 5: MULTINOMIAL LOGIT ESTIMATES OF SCHOOL CHOICE MODEL

Variables	**Private NR**		**Private Islam**		**Private Christian**		**Public**	
	b/(t)	**MFX**	**b/(t)**	**MFX**	**b/(t)**	**MFX**	**b/(t)**	**MFX**
MALE	-0.237[a]	-0.031	-0.235	-0.013	-0.270	-0.010	-	0.053
	(0.142)		(0.178)		(0.226)		-	
ISLAM	-0.477[c]	-0.059	2.812[c]	0.122	-1.967[c]	-0.173	-	0.109
	(0.168)		(0.718)		(0.218)		-	
PRIFAIL	0.085	0.015	0.003	-0.000	-0.169	-0.009	-	-0.006
	(0.166)		(0.207)		(0.275)		-	
TOWN	-0.193	-0.025	-0.714[c]	-0.045	0.475[a]	0.031	-	0.039
	(0.170)		(0.223)		(0.254)		-	
CITY	0.451[b]	0.073	-0.332	-0.030	0.563[a]	0.027	-	-0.070
	(0.180)		(0.257)		(0.304)		-	
LANGINDO	-0.051	-0.004	-0.286	-0.020	0.083	0.006	-	0.019
	(0.146)		(0.186)		(0.227)		-	
FATHJH	0.045	0.012	-0.352	-0.024	0.001	0.001	-	0.011
	(0.213)		(0.284)		(0.310)		-	
FATHSHHE	-0.512[b]	-0.060	-0.790[b]	-0.040	-0.278	-0.006	-	0.107
	(0.252)		(0.350)		(0.371)		-	
MOTHJH	-0.465	-0.063	-0.013	0.005	0.093	0.009	-	0.050
	(0.298)		(0.374)		(0.365)		-	
MOTHSHHE	0.112	0.003	0.701[a]	0.063	0.026	-0.003	-	-0.063
	(0.328)		(0.415)		(0.498)		-	
CONSTANT	-0.671[c]		-3.841[c]		-1.008[c]		-	
	(0.198)		(0.726)		(0.259)		-	
N	1530							
chi2	149.596[c]							
bic	3181.850							

[*] T-statistics are in parenthesis and heteroscedasticity consistent
[a] Significance at 10%
[b] Significance at 5%
[c] Significance at 1%

The dependant variables of the model are included gender variable *(MALE)*, control vari-

able for ability, and family background. Since only 47 of 1530 respondents has the information about the final test score at primary school or NEM, I use "failed in the primary school" *(PRI-FAIL)* variable as the proxy for control variable for ability. For family background, firstly, I use dummy variables to inform about the type of demographic of the respondents when they were 12 years old *(VILLAGE, TOWN and CITY)*. It is whether they lived in rural area, small town, or big city. Secondly, I use the parents' education background *(FATHJH, FATHSHE, MOTHJH, and MOTHSHE)* as variables that inform about the socio economic backgrounds.

Religion *(ISLAM)* plays a powerful role in school type choice as the variable is significant in all three private school estimations. Muslim respondents significantly have lower probability to enroll in private secular and private catholic and others school. Obviously, Muslim respondents have higher probability to attend the private Islam school. Gender *(MALE)* is only significant in private secular school as women have higher chances of going to that school.

The positive and significant of coefficient on *CITY* shows that people who lived in the big city when they were 12 years have a higher chance of attending private secular and private Christian and others. The resident in the small town *(TOWN)* also increases the chance of attending a private Christian school and on the other hand, reduces the probability of attending private Islam.

5.2 Selectivity Variable, School Choice, and Earnings

The next step is to estimate the link between school choice and earnings. If students in each type of school shared the same unmeasured characteristics, Ordinary Least Square (OLS) estimation would be unbiased. On the other hand, if parents tend to send their children to a particular school type as they expected future higher earnings for their children. Thus, the sub-sample in four school types would not be random draw from the population and OLS would produce inconsistent estimation.

To confirm whether the sub-sample is random or has selection bias, I use correction sample selection bias method by Lee (1983) or multinomial logit-OLS two step estimation framework

for modeling polychotomous choice problem. Technically, I use the stata syntax's `selmlog` that proposed by Bourguignon et al. (2007). Bourguignon et al. (2007) create selmlog as a set of method in Stata on selection bias correction, when selection is specified as a multinomial logit (Bourguignon et al., 2007). In addition, I use Lee's option method in as it is suggested by many previous literatures (Kingdon, 1996; Glewwe and Jacoby, 1994; Bedi and Garg, 2000; McEwan, 2001; Al-Samarrai and Reilly, 2006; Meer, 2007).

I present the results of selection-corrected earnings in table 8. The most important results of selected-corrected earnings in table 8 are the significances of selectivity variables or so-called Inverse Mills Ratio (IMR). The statistically significant selectivity variables are essential as the results of the estimation are used to decompose the earnings differential based on school type.

All three lambda in three earnings selected corrected estimation are insignificant. These evidences, insignificant selectivity bias coefficients, suggest that ordinary least squares (OLS) estimates would be unbiased, as would an earnings differential decomposition based on OLS results (Reimers, 1983). The statistical insignificant of the selectivity effects may partly due the inclusion of most of the variables from the first-step equations (Kingdon, 1996).

Table 5 presents results from the ordinary least square models estimated for each category of school. The positive and significant coefficients on *MALE* in all groups indicate that man, given the same levels of education, family background and other control variables, earns on average higher than woman. In private Islam school group, man earns 91.2 percent higher than woman whereas in public, private secular and private Christian man earns 50.2 percent, 68.5 percent and 70 percent higher than woman.

The coefficients on variables *SENIOR* are significance in three type of schools: public, private secular, and private Islam. In public school the coefficient is 0.519 whereas in private secular and private Islam are 0.351 and 0.708. The coefficient on variable *SENIOR* for public school, for instance, means that for given other observable variables, in public school group, people who has senior secondary education have earnings about 51.9 percent higher than people who do not enter the senior secondary school. Moreover, people from private secular and

private Islam group have earnings about 35.1 percent and 70.8 percent higher than people from their own group who do not have senior secondary education. The coefficients on variables *HE* also significant in three type of school public, private secular and private Islam. In public school the coefficient is 0.957 whereas in private secular and private Islam are 0.942 and 0.835. The coefficient on variable *HE* for public school, for instance, means that for given other observable variables, in public school group, people who continue to higher education have earnings about 95.7 percent higher than people who do not attend the higher education.

Other individual characteristic variables that have influence to affect future earnings are *AGE, AGE2, NONISLAM, LANGINDO,* and *URBAN*. Table 5 results suggest that the age and experience have positive significant to group of people from public and private secular school.

For instance, the coefficient on *AGE* in public school holding other control variable means that adding one more year of age increases *LOGEY* or log yearly earnings by 14.5 percent. The negative coefficients on AGE2 or age squared in public and private Islam group prove that there are diminishing returns to age in both of school groups. These result is confirmed the Mincer's experience-earnings profile. With the assumption a linear relation between earnings and age of Mincer (1958) suggest that the experience-earnings profile is a concave shape.

Coefficients *LANGINDO, NONISLAM,* and *URBAN* are only significant in a group of sample. The coefficient on variable *LANGINDO* is only significant on public school group. In public school, people who use Indonesian language in daily life have 22.4 percent higher earnings than other people in the same group. Moreover, the positive sign on coefficient on variable *NONISLAM* in private Christian school indicates that people whose religion is not Islam earns 56.2 percent higher than Muslim people in the same group. In Indonesia a non-Christian is allowed to study at a private Christian school. *URBAN* variable is only significant in public school group. The positive coefficient on *URBAN* suggest that people who lived in the urban area earns 14.8 percent higher than people who lived in rural area in public school group.

Some of parent background variables are only significant in public and private Christian

Table 6: OLS EARNINGS REGRESSION EQUATION

Variables	Public	Private NR	Private Islam	Private Christian
	coeff./ (t-stat)	coeff./ (t-stat)	coeff./ (t-stat)	coeff./ (t-stat)
CONSTANTA	11.738 ***	12.117***	12.285***	14.971***
	(20.105)	(11.026)	(7.400)	(5.346)
AGE	0.145***	0.126**	0.086	-0.069
	(4.226)	(2.280)	(0.831)	(-0.412)
AGE2	-0.002***	-0.002**	-0.001	0.001
	(-3.623)	(-2.326)	(-0.742)	(0.402)
MALE	0.502***	0.685***	0.912***	0.700**
	(6.508)	(4.259)	(4.609)	(2.534)
NONISLAM	-0.140	0.166	-0.731	0.562**
	(-0.990)	(0.611)	(-1.004)	(2.013)
PRIFAIL	-0.055	-0.018	-0.137	-0.065
	(-0.672)	(-0.108)	(-0.699)	(-0.180)
LANGINDO	0.224**	0.083	0.243	-0.060
	(2.452)	(0.379)	(0.967)	(-0.200)
SENIOR	0.519***	0.351**	0.708***	0.215
	(6.212)	(2.163)	(3.605)	(0.661)
HE	0.957***	0.942***	0.835***	0.246
	(9.783)	(4.765)	(3.051)	(0.657)
FATHJH	0.012	0.267	0.251	0.721*
	(0.102)	(1.420)	(0.853)	(1.836)
FATHSHHE	0.096	-0.320	0.164	0.255
	(0.856)	(-0.867)	(0.321)	(0.807)
MOTHJH	0.277*	-0.093	0.606	0.228
	(1.918)	(-0.232)	(1.556)	(0.621)
MOTHSHHE	0.230	0.535	0.411	-0.089
	(1.624)	(1.365)	(0.917)	(-0.244)
URBAN	0.148*	0.194	0.323	0.040
	(1.836)	(1.297)	(1.522)	(0.143)

Note:
- T-statistics standard errors are in parenthesis and heteroscedasticity consistent
- * = p<0.10, ** = p<0.05, *** = p<0.01

school. In public school people whose mother has junior secondary education, ceteris paribus, earns 27.7 percent higher than other people in the same group. On the other hand, a person whose father has junior secondary education background earns 72.1 percent income higher

than other people in the same group.

Table 7: DECOMPOSITION OF EARNINGS DIFFERENTIALS BETWEEN PUBLIC AND PRIVATE SCHOOLS (OLS ESTIMATION)

	Private NR	**Private Islam**	**Private Christian**
Earnings Differential	0.250	0.352	-0.028
Decompositions of earnings Differential			
Observed Xs (explained differentials)	0.166***	0.194**	-0.317***
	(3.44)	(2.35)	(-2.67)
Observed prices (unexplained differentials)	0.085	0.158	0.289
	(1.03)	(1.51)	(1.89)
EXPERIENCE	0.020	0.007	-0.018
	(1.51)	(0.48)	(-0.79)
SEX	0.024	0.021	0.045
	(1.22)	(0.73)	(1.38)
RELIGION	-0.001	-0.063	-0.086
	(-0.09)	(-1.17)	(-1.33)
ABILITY	0.001	0.000	-0.001
	(0.35)	(0.06)	(-0.29)
LANGUAGE	0.001	0.018	-0.003
	(0.26)	(1.30)	(-0.43)
EDUCATION	0.084***	0.135***	-0.007
	(3.38)	(3.80)	(-0.29)
PARENTS EDUCATION	-0.003	0.026	-0.015
	(-0.17)	(1.05)	(-0.72)
RESIDENT PROVINCE	-0.065	0.003	-0.022
	(-1.35)	(0.05)	(-0.21)
SCHOOL PROVINCE	0.104**	0.049	-0.209*
	(2.22)	(0.93)	(-1.65)
TOTAL	0.166***	0.194**	-0.317***
	(3.44)	(2.35)	(-2.67)

Note:
- T-statistics standard errors are in parenthesis and heteroscedasticity consistent
- * = p<0.10, ** = p<0.05, *** = p<0.01

5.3 Earnings Differentials

I use the Blinder-Oaxaca decomposition to estimate earnings differential between public and private school graduates. The Blinder-Oaxaca decomposition in this case explains the log earnings gap into three parts: (i) that due to differences in selectivity bias, (ii) that due to differences in average characteristics of the groups that attending a particular school type and (iii) that due to differences in the parameters of the earnings function Reimers (1983). Following Bedi and Garg(2000), I use Reimers's decomposition technique where the diagonal of D (matrix of weights) equals 0.5 as it could avoid the inconsistency in decomposition result.

I use Ben Jann's Stata routine `decompose` which allow estimating the decomposition of earnings differentials in one command. According to Jann (2004): "`decompose` computes several decompositions of the outcome variable difference. The decompositions show how much of the gap is due to differing endowments between the two groups, and how much is due to discrimination. Usually this is applied to earnings differentials using Mincer type earnings equations" (Jann, 2004).

Since there is no evidence of significant on selectivity bias coefficient so the earnings decomposition is based on OLS estimation. I presents the result of Blinder-Oaxaca decomposition of OLS estimation between public and private schools in table 6 and 7. A number important result emerges from this table. First, the public school group earns higher income than private secular and private Islam group whereas the private Catholic and Protestant group earns higher than public school group.

The average earnings differential between public school group and private NR group is 0.250 log points. The difference in the observed characteristics or explained differentials is 0.166 log points. The statistically significant observed dependent variable means that the model could explain 66.4 percent of the earnings differential. Whereas the other 0.085 log points or 33.6 percent of gap are unexplained by the variables in the empirical model. There are two variables that significantly construct the earnings gap in between these two groups. With a gap of 0.104 log points, the dummy variable of province of junior secondary school has a

strongest influence to the earnings differential. The second strongest variable is education whereas public school group enjoy higher yearly earnings as they most likely have higher education than private secular group.

The earnings differential between public school group and private Islam is 0.352 log points as the earnings gap between public and private Islam school is larger than the gap between public and private secular school group. The explained differential between these two school groups is 0.194 log points or 55.11 percent. On the other hand, there are 44.89 percent unexplained differentials by the variables in the model.

Private Christian group have higher yearly earnings than public school group as the gap is 0.028 log point. Public school group who have dominant ability, characteristics and family background compare to private Islam dan private secular, have poorer endowment compare to private Christian group. However, only *SCHOOL PROVINCE* variable that statistically significant contribute to the gap that is explained by the model. Public school group has -0.209 log points gap in *SCHOOL PROVINCE* factor.

There are some interesting findings. First, public school education that has lower average parent education background still has higher earning that compensate from ability. Second, all the explained variable are statistically significant. This result suggests that the source of the earnings gap in public-private groups is ability, characteristics and family background. Third, there are no evidence that there is discrimination in earnings formation based on type of school.

6. Summary and Conclusions

I investigate the school effectiveness and the effect of parental choice on early education to their children's future earnings in Indonesia. Instead of using academic achievement as the school effectiveness indicator, I follow major economics research to focus to earnings as the measurement. Earnings are believed by majority of economist as an accurate indicator of market value on skill and knowledge that obtained in school. Using the Blinder-Oaxaca decomposition with

Reimers' decomposition technique, I compare the earnings of student who schooled at 4 types of junior secondary school: public, private non religious, private Islam, and private Christian. Controlling for individual characteristics and parents education, the result suggested that public school students earns 25 per cent and 35.2 percent higher than their private secular and private Islam counterparts. On the other hand, people who schooled at private Christian earn higher income than people who studied at public school. These result are contrasting with Bedi and Garg (2000) as they conclude that that private non-religious schools are more effective than public. All three earnings decompositions between public and private schools are significantly explained by variables in the model. There is evidence that the strongest significant factor that create earnings gap between public and private secular and Islam school is the individual's highest level of education. This finding could lead to another research question whether the earnings gap are directly created by the effectiveness of the junior schools or determine by the choice of senior secondary school or higher education.

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Table 8: SCHOOL CHOICE AND EARNINGS REGRESSION WITH TWO STEP METHOD

Variables	**Public**	**Private NR**	**Private Islam**	**Private Christian**
	Coeff./ (t-stat)	**Coeff./ (t-stat)**	**Coeff./ (t-stat)**	**Coeff./ (t-stat)**
CONSTANTA	11.679***	11.059***	13.140***	13.140***
	(17.355)	(6.412)	(5.858)	(5.858)
AGE	0.145***	0.124**	0.086	-0.079
	(4.213)	(2.260)	(0.833)	(-0.455)
AGE2	-0.002***	-0.002**	-0.001	0.001
	(-3.612)	(-2.300)	(-0.749)	(0.440)
MALE	0.509***	0.622***	0.978***	0.687**
	(6.078)	(3.656)	(4.191)	(2.580)
NONISLAM	-0.156	0.320	0.034	0.927
	(-0.873)	(1.086)	(0.026)	(0.806)
PRIFAIL	-0.055	0.026	-0.133	-0.100
	(-0.672)	(0.144)	(-0.671)	(-0.279)
LANGINDO	0.227**	0.076	0.322	-0.035
	(2.419)	(0.343)	(1.129)	(-0.110)
SENIOR	0.518***	0.357**	0.717***	0.211
	(6.193)	(2.224)	(3.657)	(0.636)
HE	0.957***	0.948***	0.814***	0.246
	(9.761)	(4.780)	(2.942)	(0.656)
FATHJH	0.015	0.333*	0.356	0.720*
	(0.129)	(1.669)	(0.993)	(1.795)
FATHSHHE	0.113	-0.467	0.375	0.234
	(0.740)	(-1.182)	(0.578)	(0.763)
MOTHJH	0.282*	-0.275	0.625	0.280
	(1.903)	(-0.589)	(1.586)	(0.683)
MOTHSHHE	0.221	0.585	0.220	-0.086
	(1.427)	(1.455)	(0.387)	(-0.228)
URBAN	0.148*	0.218	0.392*	0.081
	(1.843)	(1.415)	(1.847)	(0.269)
LEE1	-0.099			
	(-0.170)			
LEE2		-0.784		
		(-0.882)		
LEE3			0.623	
			(0.704)	
LEE4				-0.427
				(-0.325)